

WHAT IS CLAIMED IS:

1. A method for securely transferring control to a system management mode (SMM) after the generation of a system management interrupt (SMI) by a program executing on a computer, comprising:

5 detecting the generation of an SMI from a caller in the application program;
determining in SMM if the caller is included in a dispatch table;
dispatching to a target function that is associated with the caller in the
dispatch table if it is determined that the caller is included in the dispatch table; and
executing the target function.

10

2. The method of claim 1, further comprising:
exiting from SMM after completing the execution of the target function; and
resuming the processing of the application program.

15

3. The method of claim 1, further comprising:
identifying the type of SMI that is detected; and
dispatching the detected SMI to an SMI event handler in SMM based upon
the identified type,
wherein the SMI event handler determines if the detected SMI is included in
20 the dispatch table.

25

4. The method of claim 1, further comprising:
exiting from SMM if it is determined that the caller is not included in the
dispatch table.

5. The method of claim 1, wherein the dispatch table is only visible in
SMM.

6. The method of claim 1, wherein the dispatch table is created during
30 the compilation of the program.

7. A utility for securely transferring control to a system management mode (SMM) after the generation of a system management interrupt (SMI) by a program executing on a computer, comprising:

5 a monitoring unit for detecting the generation of an SMI from a caller in the application program and determining in SMM if the caller is included in a dispatch table;

a transfer unit for dispatching to a target function that is associated with the caller in the dispatch table if it is determined that the caller is included in the
10 dispatch table; and

a processing unit for executing the target function.

8. The utility of claim 7, further comprising:

a completion unit for exiting from SMM after completing the execution of
15 the target function to resume the processing of the application program.

9. The utility of claim 7, further comprising:

a type detecting unit for identifying the type of SMI that is detected; and

a handler unit for dispatching the detected SMI to an SMI event handler in
20 SMM based upon the identified type,

wherein the SMI event handler determines if the detected SMI is included in the dispatch table.

10. The utility of claim 7, further comprising:

25 a completion unit for exiting from SMM if it is determined that the caller is not included in the dispatch table.

11. The utility of claim 7, wherein the dispatch table is only visible in SMM.

30

12. The utility of claim 7, wherein the dispatch table is created during the compilation of the program.

13. A computer system having a CPU operating in a normal mode or a system management mode (SMM), the computer system comprising a device for securely transferring control to the SMM after the generation of a system management interrupt (SMI) by a program executing on the computer system, the device configured to:

detect the generation of an SMI from a caller in the application program;
 10 determine in SMM if the caller is included in a dispatch table;
 dispatch to a target function that is associated with the caller in the dispatch table if it is determined that the caller is included in the dispatch table; and
 execute the target function.

14. The device of claim 13, further configure to:
 exit from SMM after completing the execution of the target function; and
 resume the processing of the application program.

15. The device of claim 13, further configure to:
 20 identify the type of SMI that is detected; and
 dispatch the detected SMI to an SMI event handler in SMM based upon the identified type,
 wherein the SMI event handler determines if the detected SMI is included in the dispatch table.

16. The device of claim 13, further configure to:
 exit from SMM if it is determined that the caller is not included in the dispatch table.

17. The device of claim 13, wherein the dispatch table is only visible in SMM.

18. The device of claim 13, wherein the dispatch table is created during the compilation of the program.

5 19. A computer-readable storage device having a utility for securely transferring control to a system management mode (SMM) after the generation of a system management interrupt (SMI) by a program executing on the computer system, the utility comprising:

a monitoring unit for detecting the generation of an SMI from a caller in the
10 application program and determining in SMM if the caller is included in a dispatch table;

a transfer unit for dispatching to a target function that is associated with the caller in the dispatch table if it is determined that the caller is included in the dispatch table; and

15 a processing unit for executing the target function.

20. The utility of claim 19, further comprising:

a completion unit for exiting from SMM after completing the execution of the target function to resume the processing of the application program.

20

21. The utility of claim 19, further comprising:

a type detecting unit for identifying the type of SMI that is detected; and

a handler unit for dispatching the detected SMI to an SMI event handler in SMM based upon the identified type,

25 wherein the SMI event handler determines if the detected SMI is included in the dispatch table.

22. The utility of claim 19, further comprising:

a completion unit for exiting from SMM if it is determined that the caller is
30 not included in the dispatch table.

23. The utility of claim 19, wherein the dispatch table is only visible in SMM.

24. The utility of claim 19, wherein the dispatch table is created during
5 the compilation of the program.

25. A method for developing a program system that can validate system management interrupt (SMI) calls generated by a program available in source code form, the method comprising:

10 compiling the source code;

identifying at least one predetermined indication in the source code that identifies the location of an SMI call and its target;

creating a dispatch table based on information associated with the predetermined indication, wherein each entry in the dispatch table associates a
15 caller, which generates an SMI in the program, with a target function to be executed in system management mode (SMM); and

storing the dispatch table where it is accessible by a dispatcher in SMM.

26. The method of claim 25, wherein the predetermined indication
20 identifies to which target function to dispatch.

27. The method of claim 25, further comprising:

identifying callers in the dispatch table by addresses, and

25 sorting the entries in the dispatch table according to the addresses of the callers.

28. The method of claim 25, further comprising:

linking compiled SMM code together with the dispatch table.

30 29. The method of claim 28, further comprising:

executing the program;

detecting the generation of an SMI from a caller in the program;
determining in SMM if the caller is included in the dispatch table;
dispatching to a target function that is associated with the caller in the
dispatch table if it is determined that the caller is included in the dispatch table; and
5 executing the target function.

30. A utility for developing a program system that can validate system
management interrupt (SMI) calls generated by a program available in source code
form, the utility comprising:

10 a compiler for compiling the source code and identifying at least one
predetermined indication in the source code that identifies the location of an SMI
call and its target;

15 a table unit for creating a dispatch table based on information associated with
the predetermined indication, wherein each entry in the dispatch table associates a
caller, which generates an SMI in the program, with a target function to be
executed in system management mode (SMM); and

20 a linker for storing the dispatch table where it is accessible to a dispatcher in
SMM.

31. The utility of claim 30, wherein the predetermined indication
20 identifies to which target function to dispatch.

32. The utility of claim 30, further comprising:

25 an identification unit for identifying callers in the dispatch table by
addresses, and

30 a sorting unit for sorting the entries in the dispatch table according to the
addresses of the callers.

33. The utility of claim 30, wherein the linker links the compiled SMM
code together with the dispatch table.

34. The method of claim 33, further comprising:

a processing unit for executing the program;

a monitoring unit for detecting the generation of an SMI from a caller in the program and determining in SMM if the caller is included in the dispatch table; and

a transfer unit for dispatching to a target function that is associated with the caller in the dispatch table if it is determined that the caller is included in the dispatch table,

wherein the processing unit executes the target function.

35. A computer system comprising a device for developing a program system that can validate system management interrupt (SMI) calls generated by a program available in source code form, the device configured to:

compile the source code;

identify at least one predetermined indication in the source code that identifies the location of an SMI call and its target;

create a dispatch table based on information associated with the predetermined indication, wherein each entry in the dispatch table associates a caller, which generates an SMI in the application program, with a target function to be executed in a system management mode (SMM); and

store the dispatch table where it is accessible to a dispatcher in SMM.

36. The method of claim 35, wherein the predetermined indication identifies to which target function to dispatch.

37. The method of claim 35, further configured to:

identify callers in the dispatch table by addresses; and

sort the entries in the dispatch table according to addresses of the callers.

38. The method of claim 35, further configured to:

link compiled SMM code together with the dispatch table.

39. The method of claim 38, further configured to:

execute the program;
 detect the generation of an SMI from a caller in the program;
 determine in SMM if the caller is included in the dispatch table;
 dispatch to a target function that is associated with the caller in the dispatch
 5 table if it is determined that the caller is included in the dispatch table; and
 execute the target function.

40. A computer readable storage device having a utility for developing a
 program system that can validate system management interrupt (SMI) calls
 10 generated by a program available in source code form, the utility comprising:

a compiler for compiling the source code and identifying at least one
 predetermined indication in the source code that identifies the location of an SMI
 call and its target;

a table unit for creating a dispatch table based on information associated with
 15 the predetermined indication, wherein each entry in the dispatch table associates a
 caller, which generates an SMI in the program, with a target function to be
 executed in a system management mode (SMM); and

a linker for storing the dispatch table where it is accessible to a dispatcher in
 SMM.

20

41. The utility of claim 40, wherein the predetermined indication
 identifies to which target function to dispatch.

42. The utility of claim 40, further comprising:
 25 an identification unit for identifying callers in the dispatch table by
 addresses; and

a sorting unit for sorting the entries in the dispatch table according to
 addresses of the callers.

43. The utility of claim 40, wherein the linker links compiled SMM code
 30 together with the dispatch table.

44. The method of claim 43, further comprising:
- a processing unit for executing the program;
 - a monitoring unit for detecting the generation of an SMI from a caller in the
 - 5 program and determining in SMM if the caller is included in the dispatch table; and
 - a transfer unit for dispatching to a target function that is associated with the caller in the dispatch table if it is determined that the caller is included in the dispatch table,
 - wherein the processing unit executes the target function.

007207:88246960